BURLINGTON ENVIRONMENTAL INC.,
A WHOLLY OWNED SUBSIDIARY OF
PHILIP SERVICES CORPORATION

GEORGETOWN FACILITY
WAD 00081 2909

PROPOSED MODIFICATION TO

AGENCY LEAD FOR CORRECTIVE ACTION

(to replace permit section VII)

VII.A. Corrective Action Requirements

VII.A.1. In the event any permit condition in Part VII of this permit is in conflict with any provisions in the approved workplans and reports submitted pursuant to Part VII of this permit, the permit condition shall be the applicable requirement.

VII.A.2. In this section of the permit the following terms have the respective meanings:

- *Corrective Action* refers to the process, and actions within that process, to investigate and cleanup environmental contamination from facility releases of dangerous waste and dangerous constituents, ~~40 CFR 261, Appendix 8, RCRA hazardous constituents~~ including actions taken pursuant to Chapter 70.105D RCW and Chapter 173-340 WAC, as defined in WAC 173-303-646(1).

- *Remedial Action* refers to the ~~MTCA~~ cleanup action ~~for the Facility;~~ reviewed and approved by the Department for the facility and set forth in a facility-specific Cleanup Action Plan (CAP) prepared in compliance with the requirements of Chapter 173-340 WAC, including WAC 173-340-360 (Selection of Cleanup Actions).

- *Environmental Indicators* are results-based measures of corrective action progress that are the Environmental Protection Agency's primary interim cleanup goals. There are two such indicators for RCRA Corrective Action:

a) Current Human Exposures Under Control. When this Indicator has been met it is based on an Ecology conclusion that there are no "unacceptable" human exposures to "contamination" that can reasonably be expected under current soil and groundwater use conditions. And,

b) Migration of contaminated Groundwater Under Control. When this Indicator has been met it is based on an ECOLOGY conclusion that migration of "contaminated" groundwater has stabilized, that the contaminants in the groundwater do not discharge into surface water at currently "unacceptable" levels, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater."

- *Practical Quantitation Levels*, or PQLs, refer to analytical levels which are the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory conditions.

- *Remedial alternative* means a cleanup option.

- *RCRA Facility Investigation (RFI)* is equivalent to *Remedial Investigation (RI)* and is the facility wide investigation and characterization performed in accordance

with the requirements of Chapter 173-340 WAC and the RI scope of work within this Permit, undertaken in whole or in part to fulfill the corrective action requirements of WAC 173-303-646 (Corrective Action).

VII.A.3. Remedial Investigation (RI):

a) The Permittee shall complete a Remedial Investigation (RI) to fully delineate the nature and extent of hazardous constituents released at or from the facility. The Permittee shall perform all tasks and activities specified in the Permittee's Final RFI Addendum Scope of Work (submitted in 10/99), the EPA-approved Supplemental Off-site Characterization Work Plan (approved on 9/29/00), the Risk Assessment Work Plan (see A.3.d. below), and the EPA-approved Soil Gas Sampling and Analysis Plan (approved on 12/4/00). The Supplemental Off-site Characterization Work Plan, the Final RFI Addendum Scope of Work, and the Soil Gas Sampling and Analysis Plan are hereby incorporated by reference as Attachment MM of this permit.

b) All RI work conducted pursuant to this permit condition shall be completed in acceptable quality by schedules contained in Attachment MM.

c) As a result of investigation findings, additional work may be required to complete the RI. In such cases the Permittee shall meet the requirements of VII.A.5. for amending the RI.

d) Human Health and Ecological Risk Assessment.

A quantitative human health and ecological risk assessment will be conducted for the site to assess current and future exposure pathways and to define risk-based remediation goals and proposed points of compliance. The risk assessment shall include an assessment of pathway-specific, as well as cumulative, risks to human and ecological receptors. This risk assessment shall be undertaken in a manner consistent with RCRA guidances and the Washington State Department of Ecology regulations and guidances, as specified in the final, approved Risk Assessment Work Plan.

Draft Human Health and Ecological Risk Assessment: By the date established for its submission in Table VII-1, a Draft Human Health and Ecological Risk Assessment shall be submitted to the Director.

Final Human Health and Ecological Risk Assessment: The Director shall review the draft Risk Assessment and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall submit a revised version of the risk assessment, per Table VII-1, that satisfactorily addresses the Director's comments. Failure to submit a revised risk assessment which adequately addresses each of the Director's comments shall constitute a violation of this permit. In such cases the Director will approve

the revision as Final with modifications, or disapprove it with comments.

VII.A.4. Remedial Investigation (RI) Report:

The Permittee shall document the results of the investigation, based on data collected during the RI, and submit a draft Comprehensive RI Report (as required by VII.A.4.a) to the Director by a date identified in Table VII-1.

a) Draft Comprehensive RI Report: This report shall include:

(1) conclusions and findings, substantively supported, of the investigations performed to characterize media actually or potentially contaminated by releases from the facility. Findings and conclusions will include descriptions of below-surface stratigraphy and hydrogeologic parameters, as well as characterization of the nature and extent of hazardous constituents.

(2) results of a groundwater beneficial use analysis (as specified in the Final RFI Scope of Work, Attachment MM).

(3) results from groundwater and soil gas modeling projects (including those specified in Attachment MM), including assumptions made, calculations used, and tables and figures.

(4) summary tables of all soil, soil gas, groundwater, and air monitoring/sampling results to include: sample collection date; sample location; constituents analyzed for and their concentrations; and the media-specific preliminary remediation goals, as described in the final, approved Risk Assessment (VII.A.3.d.). In addition, method reporting limits, method detection limits and Practical Quantitation Levels will be provided on these tables as available. If these limits are not available to the Permittee for certain historical data sets, the RI Report shall include a discussion describing why such limits are absent and how this absence affects the data's useability.

(5) maps identifying the locations of all investigation-related sampling, and all remediation-related monitoring locations.

(6) a description and discussion of the groundwater point of compliance. The point of compliance is established as those wells where the lowest of the following screening criteria are, or have been since January 1, 1998, exceeded: Washington State Department of Ecology Model Toxics Control Act (MTCA) Method B groundwater cleanup criteria; MTCA Method A groundwater cleanup criteria; the EPA Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), any non-zero MCL goals, and conservative, peer-reviewed (by the scientific community),

ecological risk-based concentrations for Duwamish River receptors approved by the Director in the Risk Assessment.

7) may include a clearly defined, proposed modification to the point of compliance in (6) above for the remedial action objectives that will be used in the site-specific Feasibility Study, or "FS". Such a modification may be requested for cases where the Permittee believes the point of compliance should not include contaminated groundwater within the facility's property limits, and/or where the results of the risk assessment (performed according to requirements in (VII.A.3.d above) indicate that new criteria should be used to define those wells where remedial action levels must be met.

(8) proposed preliminary remedial action levels and preliminary remedial action objectives to be used in the FS, following approval by the Director.

As part of this identification of preliminary cleanup levels and objectives, the Permittee shall attach to the Report a determination as to whether the Environmental Indicators for protecting current human receptors from unacceptable exposures, and for stopping the downgradient movement of contaminated groundwater, have been met. If one or both of the two Indicators have not been met, the Permittee may be directed by the Director to submit an Interim Measures Work Plan, due on the date established in Table VII-1 for the Final Comprehensive RI Report, to meet the requirements of VII.C. The Director shall review the Environmental Indicator determinations together with the rest of the draft RI Report, and approve, disapprove, or approve them with comments in the Director's response to the draft Report.

(9) results of quality assurance activities and how and why they relate to the RI Report's findings and conclusions, as specified in the final RI Scope of Work (Attachment MM) and final, approved Risk Assessment Work Plan. This assessment of data quality shall be consistent with EPA's July 1996 Guidance for Data Quality Assessment (QA/G-9), and any updates provided in EPA's Quality Assurance Website at http://www.epa.gov/r10earth/offices/oea/r0qahome.htm.

(10) a discussion of the analysis of data usability and the results of that analysis. As required by the RFI SOW and Risk Assessment Work Plan, the Permittee shall calculate and evaluate the potential error associated with findings.

(11) a proposal for a new schedule for corrective action progress reports (condition VII.A.7.) to begin once the Director approves the Final Comprehensive RI Report (VII.A.4.b.). These progress reports shall not

be submitted less frequently than quarterly.

(12) a draft Community Relations Plan containing, at a minimum:

i) public notice requirements (from ~~40 CFR 270.42~~WAC 173-303-830(4) ~~and 40 CFR 124~~WAC 173-303-840(3) - (9) and WAC 173-340-600) and planned activities, and how the Permittee shall meet these requirements and activities;

ii) the location of the Permittee's repository;

iii) methods for identifying the public's concerns;

iv) methods for addressing the public's concerns and conveying information to the public; and,

v) procedures for modifying the Plan (per ~~40 CFR 270.42~~WAC 173-303-830(4)).

The draft Plan shall be consistent with EPA's 1996 RCRA Public Participation Manual, the Department of Ecology's Guide to Public ~~Participation Manual~~ Involvement (June 1999~~?Date~~), and the Model Toxics Control Act and WAC 173-340-600. ~~the December 11, 1995, final RCRA Expanded Public Participation Rule (60 FR 63417).~~

(13) the location of the Permittee's data/record storage, and the measures to be used to maintain and secure it (per VII.A.8.).

(14) the location of the public repository to be used to enable the public to review all final Corrective Action documents, reports, plans, and validated data used to support all Interim Actions and/or Cleanup Actions.

(15) a brief account of efforts made, in finalizing the RI, to notify all property owners and residents whose property lies above groundwater containing hazardous constituents which: exceed screening levels based on residential use of the groundwater as drinking water; and, are contaminants of potential concern for the Permittee's facility.

b) Final Comprehensive RI Report: The Director shall review the draft RI Report and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall submit to the Director for review and approval a revised draft of the RI Report, per Table VII-1, that satisfactorily addresses the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Report which adequately addresses each of the Director's comments shall constitute a violation of this permit.

A Feasibility Study (FS) Scope of Work Technical Memorandum, proposing the focus and format of the FS, must be submitted to the Director. If the draft RI Report is not approved, this Memorandum must be submitted together with the next revision of that Report, the Final Comprehensive RI Report. If the draft RI Report is approved, or approved with modifications, the FS Scope of Work Technical Memorandum shall be submitted to the Director within twenty-one (21) days of receipt of the Director's RI Report approval letter. The FS may proceed, and the draft FS Report may be prepared, without the Director's approval of the Technical Memorandum.

Since contaminated groundwater moves in the direction of the Duwamish River, and since it is assumed that contaminated groundwater will continue to migrate downgradient in the absence of a Cleanup Action or Interim Measure, the FS Scope of Work must additionally include analyses and predictions of future groundwater movement and the risks to receptors potentially exposed to the groundwater (and/or surface water, soil gas, and indoor/outdoor air contaminated by groundwater). These analyses and assessments may be limited to scenarios relating to post-implementation of the Permittee's final Remedial Action alternatives.

VII.A.5. Additional Work: Additional work may become necessary due to the discovery of new information. The Permittee shall submit a Work Plan for performance of the additional work to the Director for approval within sixty (60) days of the Permittee's knowledge of such a need. "Knowledge of a need" in this context will be either the Permittee's identification of such a need or notification from the Director that such a need exists.

The Director shall review the Work Plan and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall, by a date established in the Director's comment letter, submit a revised Work Plan for the Director's review and approval that satisfactorily addresses the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.A.6. Upon final approval of any Work Plan submitted pursuant to VII.A.5., the Permittee shall complete the tasks outlined in the Work Plan in accordance with its respective terms and schedules.

VII.A.7. RI Progress Reports: Progress Reports on the RI shall be submitted to the Director within 6 months of the effective date of the permit and every six months thereafter through approval of the Final Comprehensive RI Report, in accordance with VII.A.4.b. Each progress report shall contain the following information:

a) a description of the work completed;

b) summaries of all findings;

c) summaries of all problems encountered during the reporting period;

d) actions taken to rectify problems; and,

e) projected work for the next reporting period.

If, in the future, the Director determines, based on the amount and frequency of information being communicated by the Permittee, that six month intervals are too long, the Director shall notify the Permittee that quarterly reports must be submitted. The Permittee shall then have no more than ninety (90) days to submit the first quarterly progress report. Reports shall continue to be submitted by the Permittee every three months from that first quarterly progress report submittal date.

VII.A.8. All Corrective Action documents, reports, plans, and data collected to support an Interim Measure (VII.C.) and/or Cleanup Action (VII.D.), shall be stored and maintained at a secure location approved by the Director (as set out in VII.A.4.a...13.) . Such archiving must be maintained for a period not less than ten years after termination of Compliance Monitoring. Final versions of Corrective Action documents, reports, plans, and validated data collected to support all Interim and/or Cleanup Actions, shall be included in the Permittee's public repository as required by permit condition VII.A.4.a.14.

VII.A.9. Documents To Be Maintained In Corrective Action Operating Record: A written operating record shall be kept to document corrective action activities. This record may be included within the operating record required by Condition II.C.2. of the facility's "operating permit." The operating record shall include, at a minimum, the following documents and amendments, revisions, and modifications to these documents:

1) The permit, permit application, and all attachments:

2) Records and results of all laboratory analysis performed as part of the corrective action:

3) Summaries of all records of the corrective action. These records shall include logs of all soil borings taken during design of any containment barrier system; recovery well pumping rates and injection well rates; industrial pumping well rates; and other data collected to monitor each corrective action system. Records of cessation of pumping and treating and measures taken to mitigate and prevent further cessations, and dates and methods of groundwater, soil, and/or soil/gas treatment at the facility and

adjacent properties shall also be maintained:

4) Records of inspections as provided by attachments to this permit:

5) All interim measures and remedial action cost estimates, and financial assurance documentation, prepared pursuant to this Permit:

6) Records of spills and releases:

7) Copies of all other environmental permits:

8) Training records of facility personnel conducting activities pursuant to this Permit.

9) Well construction, maintenance and replacement records.

VII.A.10. New Solid Waste Management Units. At any time during the life of this corrective action permit, when the Permittee becomes aware of the existence of a previously un-identified solid waste management unit, the Permittee shall notify the Director within thirty (30) days of such awareness as to: the nature of the solid waste managed -- and if applicable, being managed -- at the unit; the potential for past, current, and future releases of any constituents identified in WAC 173-303-646(1)~~40 CFR Part 260 Appendix VIII hazardous constituents~~ from the unit; dates of operation and/or existence of the unit; any actions that have been taken to control or remediate releases from the unit; any environmental data associated with the unit or media potentially affected by releases; and, any plans for investigating the unit in accordance with RI requirements in VII.A.5.

If the Director determines, based on the potential for releases from the unit to threaten the health of humans or the environment, that the solid waste management unit must be investigated, the Director may direct the Permittee to submit a Work Plan for performance of the additional work. Such a Work Plan must be submitted to the Director for review and approval within sixty (60) days. Finalization of this Work Plan shall follow the requirements of VII.A.5.

If the Director determines, based on the potential for releases from the unit to threaten the health of humans or the environment, that the solid waste management unit must be expeditiously remediated, the Director may direct the Permittee to submit an Interim Measure Work Plan (per the requirements of VII.C.1.). Such a Work Plan must be submitted to the Director for review and approval within twenty-one (21) days. Finalization of this Work Plan shall follow the requirements of VII.C.2.

VII.A.11. In accordance with Section 3004(u) of RCRA and the regulations promulgated pursuant thereto, the Permittee must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous waste(s)

or constituents from any solid waste management units (SWMUs) at the facility, regardless of the time at which waste was placed in such units.

VII.A.12. In accordance with Section 3004(v) of RCRA and the regulations promulgated pursuant thereto, the Permittee must implement Corrective Action(s) beyond the facility property boundary, where necessary to protect human health and the environment.

VII.A.13. All Corrective Action reports, work plans, and other submittals required by this Permit, and submitted by the Permittee, shall be accompanied by a certification meeting the requirements of ~~40 CFR 270.11(d)(1)~~ WAC 173-303-810(13).

VII.A.14 Notification of Property Owners and Residents: By the date of submittal of the draft Comprehensive RFI Report (pursuant to permit condition VII.A.4.a) and annually thereafter, the Permittee shall inform property owners and residents of property which lies above groundwater being monitored pursuant to this Permit and containing hazardous constituents which exceed screening levels (Permit condition VII.A.4.a.6) of the current status of such contaminated groundwater. This notice must include a summary of the prior year's monitoring data, and state that:

1. Contaminants in the groundwater exceed the standards established in the permit and is continuing to be monitored as part of the ongoing cleanup program; or,

2. Contaminants in the groundwater are in compliance with the standards established in this permit, but that monitoring will continue until a determination of "No Further Action" has been made at the conclusion of all cleanup activities.

VII.B. Pre-Corrective Action Monitoring

The Permittee shall monitor groundwater as required by the approved Pre-Corrective Action Monitoring Plan, hereby incorporated as enforceable permit conditions in Attachment MM, and all subsequent modifications to that Plan approved by the Director, until the implementation of the Remedial Action Groundwater Monitoring program designated in condition VII.E. of this permit.

VII.B.1. The Permittee shall enter all monitoring, testing, and analytical data obtained pursuant to Section VII.B. of this permit in the operating record (as required by VII.A.9.). One written copy of all monitoring, testing, and analytical data shall be provided to the Director. In addition, all monitoring, testing, and analytical data obtained pursuant to Section VII.B. shall be submitted to the Director in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the approved Pre-Corrective Action Monitoring Plan, and in any case, b) no later than ninety (90) days following the initiation of sampling.

VII.B.2. Upon detection of 40 CFR 264 Appendix IX hazardous constituents in any monitoring well exceeding method-specific Practical Quantitation Limits (PQLs), the Permittee shall:

a) Notify the Director of this finding in writing within seven (7) calendar days after receiving validated data; and,

b) Within thirty (30) days of the validated Appendix IX detection(s), collect two (2) samples from any affected well(s) and reanalyze both samples for all constituents which were detected above PQLs. Such sampling shall not affect scheduled, Pre-Corrective Action monitoring.

An exception to this requirement is the case where groundwater metals concentrations are detected at levels exceeding PQLs, but at levels the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.B.3. if the validated metal analyte levels exceed screening levels identified in VII.A.4.a.6.

VII.B.3. If analytical results from:

a) Neither verification sample described in permit condition VII.B.2.b. confirm the detection of constituents above the Practical Quantitation Limits (PQLs), the Permittee shall resume monitoring according to the established schedule and notify the Director within seven (7) days of having received the validated verification data;

b) Only one of the verification samples described in permit condition VII.B.2.b. confirms the detection of constituents above the PQLs, the Permittee shall, within thirty (30) days of the validated initial verification sampling. repeat the verification or propose a permit modification to the Director, adding the newly detected constituents to the Pre-Corrective Action Monitoring analyte list, and proposing any other changes to the Monitoring Plan deemed necessary based on the analytical results. In either case a notification as to the Permittee's intended course of action shall be submitted to the Director within seven (7) of receipt of the verification data;

c) Both verification samples described in permit condition VII.B.2.b. confirm the detection of constituents above the PQLs, or if one or more of the *second set* of verification samples taken (per VII.B.3.b.) confirms such detection, the Permittee shall continue to monitor in accordance with the approved monitoring program in

effect, but shall, within twenty-one (21) days, propose a permit modification to the Director, adding the newly detected constituents to the Pre-Corrective Action Monitoring analyte list, and proposing any other changes to the Monitoring Plan deemed necessary based on the analytical results.

VII.B.4. If the Permittee or the Director concludes that the Pre-Corrective Action Monitoring Plan must be revised, the Permittee shall propose such revisions in a permit modification request (per ~~40 CFR 270.42~~WAC 173-303-830(4)) or the Director may initiate such a modification (per~~ 40 CFR 270.41~~WAC 173-303-830(3)).

VII.C. Interim Measures

Throughout the term of this permit, the Permittee shall continuously consider and evaluate information regarding releases, suspected releases, and/or potential releases of hazardous constituents and wastes from the facility. If the Permittee identifies a potential imminent and/or substantial threat to human health or the environment, or a need or opportunity to begin expedited cleanup actions, the Permittee shall immediately notify the Director by telephone. The Permittee shall additionally notify the Director in writing within seven (7) calendar days of such identification, describing the threat and any actions taken or proposed to be taken.

If the Director determines that any release, suspected release, or potential release of hazardous constituents at or from the facility may present a potential imminent and/or substantial threat, or a need or opportunity to begin expedited cleanup actions, the Director shall, in writing, direct the Permittee to design and implement an interim measure. Any interim measure shall be designed to protect human health and the environment and, to the maximum extent practicable, shall also strive to be consistent with, and capable of being integrated into, likely final corrective measures for the facility.

If the Director determines that any release, suspected release, or potential release of hazardous constituents at or from the facility results in groundwater contamination continuing to migrate downgradient at unacceptable levels (defined as RI screening levels prior to the start of Remedial Action Monitoring, and media clean up levels following Remedial Action selection), the Director may, in writing, direct the Permittee to plan, design, and implement an interim measure. In particular, if the draft RFI Report determines that one or both of the two Environmental Indicators have not been met, or the Director makes this determination following review of the draft RFI Report, the Permittee shall submit plans and designs to implement an interim measure. In such cases the Permittee shall submit an Interim Measures Workplan, and design and implement interim measures per a schedule which will, as soon as possible and no later than 2005, result in the control of the movement of groundwater contaminants at unacceptable levels. To the maximum extent practicable, such interim measures will be designed to be consistent with a likely final corrective measure for the facility.

VII.C.1. Draft Interim Measures Work Plan

Within twenty-one (21) calendar days of the Permittee's seven-day notification, or by such earlier or later date as may be required by written notification from the Director, the Permittee shall prepare and submit a draft Interim Measure Work Plan describing the nature of the threat, need, and/or opportunity, and proposing measures to address such threat, need, and/or opportunity. The Work Plan shall specifically include:

a) the proposed scheduling of a feasibility study, if required by the Director in order to select an optimal interim remedy;

b) a proposal and justification for the measure's design, operating procedures, and decontamination methods, to address the area(s) of contamination;

c) a summary of all relevant monitoring data, as well as information supporting the proposed location(s) for interim measures;

d) a project-specific data collection and management plan for obtaining and reporting quality assured results;

e) proposed performance goals for the interim measure, definition of "adequate progress" in meeting these goals, and a schedule for periodic evaluations of interim measure effectiveness;

f) any needed proposed changes to the Pre-Corrective Action Monitoring Plan (VII.B.), Remedial Action Monitoring Plan (VII.E.), or Compliance Monitoring Plan (VII.F.), to measure the effectiveness of the Measure. Or, a separate interim measure monitoring plan; and,

g) a detailed schedule for implementation of the Interim Measure Work Plan and for progress reports. This schedule shall also identify all post-Work Plan Interim Measure documents, and significant related activities, which will be prepared and/or carried out prior to implementation, including engineered design documents, specifications and a construction quality assurance plan. Such documents may include, e.g., design reports, enhanced design/operation specifications, pre-start-up inspections, and Operation and Maintenance (O&M) plans.

VII.C.2. Final Interim Measure Work Plan

After reviewing the draft Work Plan, the Director shall approve the Work Plan as Final, approve the Work plan as Final with modifications, or disapprove the Work Plan with comments. In the latter case, a revised Interim Measure Work Plan shall be submitted to the Director by the Permittee for the Director's review and approval. The revised Interim Measure Work Plan shall be submitted within fourteen (14) days of receipt of the Director's comments and shall satisfactorily address all comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.C.3. Following approval of an Interim Measure Work Plan, the Plan shall be incorporated automatically into this permit, and the Permittee shall implement the cleanup action in accordance with the approved Work Plan, beginning on a date

established in the Director's approval letter. Operation of the cleanup action shall comply with operation and maintenance provisions in the approved Work Plan, or, as instructed by the Director, approved plans and reports submitted pursuant to the Work Plan.

VII.C.4. Previous Implementation of Interim Measures: the Permittee has constructed and operated a Soil Vapor Extraction (SVE) interim measure system to remove volatile organic hazardous constituents from the vadose zone beneath the facility. Until its effectiveness is evaluated in the evaluation due at the time of the draft Comprehensive RFI Report submission (VII.A.4.), or sooner, the Permittee must continue operation of the system unless the system is:

- replaced by a more effective source control/minimization Interim Measure, or
- found to be totally unproductive, or
- actually causing unacceptable levels of gaseous contaminants to be released to the atmosphere, and

the Permittee is unable to correct the performance problems by replacement of parts, or catalyst or SVE-well maintenance.

The July 2, 1993 Interim Measure Design and Implementation Work Plan for the Georgetown facility is included in Attachment MM. The Permittee shall continue to operate the Soil Vapor Extraction system in compliance with the 1993 Work Plan until the Director approves the discontinuation of the measure, or the Work Plan is modified through a permit modification processed in accordance with ~~40 CFR 270 Subpart D~~WAC 173-303-830.

VII.C.5. No later than September 1, 2001, the Permittee shall submit to EPA and/or Ecology a workplan to implement immediate interim measures in order to address releases while the Remedial Investigation is being completed and final remedial alternatives are being evaluated and designed. The interim measure(s) must be designed to:

1. Established hydraulic control of dense non-aqueous phase liquid (DNAPL) and dissolved plumes of contamination. This requirement includes controlling contaminated groundwater to prevent its discharge into the Duwamish Waterway at levels which exceed MTCA Level B or aquatic criteria, whichever is more stringent:

2. Ensure that contaminated groundwater is not being used as a drinking water source:

3. Prevent indoor inhalation exposure of residents and workers located between the PSC Georgetown facility and the Duwamish Waterway in areas known or reasonably expected to have volatile organic contamination in the

shallow aquifer.

The workplan must include all components required by Section VII.C.1.b through g. The workplan shall be approved, approved with modifications, or disapproved with comments in accordance with Permit Condition VII.C.2.

VII.C.6. Periodic Evaluation of Interim Measure Systems: On a semi-annual basis, the Permittee shall evaluate the performance of all interim measure systems which have been operating for at least one year. This requirement is above and beyond the evaluations of progress required by measure-specific Interim Measure Work Plans (as described in VII.C.1.e.). The evaluation shall include the following:

a) the environmental results attributed to the measure(s) since the last reporting interval;

b) a comparison of the effectiveness of the measure(s) compared to (1) its design goals, (2) its effectiveness at start up, and (3) its effectiveness since the last reporting interval;

c) any problems associated with O&M;

d) if applicable, a discussion of efforts on-going to ensure that the measure(s) does not transfer the contamination to another medium, and if so, that an estimate of risks associated with the transfer; and,

e) any recommendations to improve the overall effectiveness of the measure(s), and/or reduce the long-term O&M costs.

Semi-annual (every six months) reports of the evaluation shall be prepared by the Permittee and submitted to the Director. The first report shall be submitted on the date the Permittee submits the final Comprehensive RI Report to the Director.

VII.C.7. Interim Measure Progress Reports: within sixty (60) days of the completion of an Interim Measure's start-up phase, the Permittee shall submit to the Director an Interim Measure Progress Report. Following this first submittal, the Permittee shall submit Progress Reports for the Interim Measure every six months, or on a more frequent schedule as specified in the approved Interim Measure Work Plan (required by VII.C.1.e.).

Within each Progress Report the Permittee shall submit to the Director a demonstration that adequate progress (as defined in the approved Interim Measure Work Plan) is being made towards meeting the interim action objectives/levels. If the monitoring data do not meet the approved criteria for determining whether adequate progress is being made, the Permittee must submit a permit modification request, pursuant to requirements in ~~40 CFR 270.42~~WAC 173-303-830(4), proposing measures to achieve adequate progress.

VII.D. Remedial Design and Remedial Action

The Permittee shall perform a Feasibility Study to propose an optimal remedy, or set of remedies, capable of meeting the remedial action objectives and levels contained in the final, approved Comprehensive RI Report.

VII.D.1. Draft Feasibility Study Report

Per the schedule in Table VII-1, the Permittee shall submit to the Director a draft Feasibility Study (FS) report. The submittal shall contain remedial action objectives and media cleanup levels from the final Comprehensive RI Report, remedial technologies, screening of those technologies, and remedial alternatives capable of achieving the RI's objectives and cleanup levels.

The Permittee shall identify a preferred remedial alternative which best meets the site-specific remedial action objectives approved by the Director in the final Comprehensive RI Report. This remedy will outperform other remedial alternatives when judged against the selection factors (evaluation criteria) listed below. An estimate of costs to complete all future corrective actions, including design, implementation, monitoring, and closure of the preferred remedy, shall also be submitted, as required by VII.J.

All potential treatment alternatives evaluated as part of this study shall meet the following criteria:

a) protection of human health and the environment through attainment of remedial action levels/objectives identified, and approved, in the Final Comprehensive RI Report; and,

b) reduction or elimination, to the extent practicable, of further releases that may pose threats to human health or the environment.

The final remedial action selection factors, required for inclusion and analysis in the Draft Feasibility Study Report, include:

JAN: were these numbered

- the permanence, and short and long-term practicability and performance reliability of the cleanup technologies
- the reduction of toxicity, mobility, and/or volume through treatment, and the estimated time to achieve these goals
- the short-term risks to public health, workers, and the environment
- the ease or difficulty of implementing the various remedial action alternatives, including technical, administrative, and logistical feasibility
- the capital and annual operation and maintenance costs, net present value of capital and annual operational and maintenance costs, and potential future remedial cost(s)
- any permitting issues, and/or institutional controls associated with the

remedial action alternatives

- the amount and nature of wastes generated from the remedial options
- the ability of the remedial action alternatives to achieve the Environmental Indicator concerning protection of current human receptors as quickly as possible, and at least by 2005
- the ability of the remedial action alternatives to achieve the Environmental Indicator concerning cessation of groundwater plume movement as soon as possible, and at least by 2005

VII.D.2. Final FS report: the Director shall review the draft FS report and approve it as Final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall revise the report and submit it to the Director for review and approval per the schedule in Table VII-1. The revision shall satisfactorily address the Director's comments. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised report which adequately addresses each of the Director's comments shall constitute a violation of this permit.

The Director's approval of remedial action levels and objectives, and a preferred remedial action, before finalization of the permit modification described in VII.D.3., does not constitute full and final approval. Such full and final approval shall be attained at the time of the Final Permit Modification issuance.

VII.D.3. Permit Modification: once the final FS report has been approved by the Director, the Director shall initiate a permit modification pursuant to ~~40 CFR 270.41~~WAC 173-303-830(3), proposing that the Permittee design and implement the measure(s) preferred in the approved, Final FS Report. The modification shall also contain a proposed date for submittal of the Draft Remedial Design and Remedial Action Scope of Work (required by VII.D.4.).

The modification shall establish the overall strategy for managing the proposed remedy's design and implementation. It shall also contain the proposed cleanup criteria (remedial action levels and objectives) and identification of any limiting/bounding factors and conditions associated with the remedial decision.

The Director shall solicit public comment on the proposed remedy, new permit language, and the remedial action levels/objectives according to requirements in ~~40 CFR Part 124~~WAC 173-303-840 and WAC 173-340-600. Following the completion of the public comment period, the Director shall issue a Final modification, selecting the remedial action. The final modification becomes effective thirty (30) days later, unless appealed.

VII.D.4. Draft Remedial Design and Remedial Action Scope of Work. Once the permit has been modified to incorporate the selected remedial action, and by a date established in the Table VII-1 schedule revision contained in the Permit Modification (see preceding permit condition), the Permittee shall submit to the

Director a Remedial Design and Remedial Action Scope of Work (SOW) for the selected remedy or remedies. The SOW shall initiate the remedial action for the selected remedy and establish the overall strategy for managing the remedy's design and implementation. It shall also contain a proposed schedule for preparation and submission all foreseeable design and implementation documents.

Additional elements of the SOW, which must be addressed in the Draft submittal, include:

a) the strategy for Remedial Design and Remedial Action (and a rationale for the proposed remedial work elements);

b) a *critical-path*, Gantt chart-type schedule and a list of milestones and deliverables. This schedule shall also be provided to the Director in electronic format;

c) a list of all needed permits;

d) the identification of any limiting/bounding factors and conditions;

e) the cleanup criteria and measurement methods for meeting the remedial action levels and objectives, as defined in the Final, remedy-selection, Permit Modification (VII.D.3.);

f) general design criteria; and,

g) a Remedial Design and Remedial Action cost estimate (for third party costs).

VII.D.5. Final Remedial Design and Remedial Action SOW. The Director shall review the draft Remedial Design and Remedial Action SOW and approve it as final, approve it as Final with modifications, or disapprove it with comments. In the latter case, the Permittee shall revise the Scope of Work to satisfactorily address the Director's comments, and submit it to the Director for review and approval by a date established in Table VII-1. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised SOW which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.D.6. Draft Remedial Design and Remedial Action Work Plan. The Permittee shall prepare a draft Remedial Design and Remedial Action (RD/RA) Work Plan for implementing the selected remedy, or remedies. The RD/RA Work Plan shall be submitted to the Director in accordance with the schedule contained in Table VII-1 of the permit. The draft RD/RA Work Plan for the design, construction, operation, monitoring, maintenance/repair, and inspection of the remediation system must: a) be consistent with the RCRA Corrective Action Plan (OSWER Directive 9902.3-2A, 5/94); b) be consistent with the Superfund Remedial Design

and Action Guidance (9355.0-4A, 6/96), and the Remedial Design/Remedial Action Handbook (9355.0-4B, 6/95), or equivalent Washington State Department of Ecology documents; and, c) at a minimum, meet the following requirements:

a) address applicable local, State, and federal regulatory requirements;

b) include the selected remedy's, or remedies, remedial action levels/objectives (including objectives to achieve the two Environmental Indicators, if those Indicators have not been met), as set forth in the Final remedy-selection, Permit Modification (VII.D.3.), and describe how the design of the corrective measure(s) will achieve these levels/objectives;

c) describe the measurement methods that will be used to confirm achievement of the remedial objectives/levels, and include criteria for assessing monitoring data and triggering any response actions;

d) include a remedial action groundwater monitoring plan in accordance with permit condition VII.E.;

e) include a remedial action monitoring plan for any other media for which monitoring is identified by the Permittee or the Director within the permit modification described in VII.D.3.;

f) include a revised third party cost estimate for design, construction, and implementation of the selected remedy, and a schedule for adjusting these estimates in accordance with VII.J.2. Also, include an estimate of costs to complete all future corrective actions, as required by VII.J.;

g) include a critical path, Gantt chart-type project schedule, which identifies the significant upcoming remedial action activities, documents, and remedial progress reports deemed critical to the timely implementation and oversight of the Remedial Action (that must be prepared more frequently than required by VII.D.10.);

h) include a demonstration of financial assurance for the RD/RA in the form of one of the mechanisms required by section VII.J.;

i) include design/engineering documents, drawings, and specifications;

j) include field oversight protocol, coordination procedures, and the schedule and agenda for all pre-final and final inspections;

k) include a RD/RA-specific Health and Safety Plan (which must also discuss emergency procedures related to RD/RA activities). This Plan must be submitted, but it is not the Director's intention to review it for approval purposes;

l) include a remedial action-specific waste management plan, and decontamination and decommissioning plan;

m) include a construction Quality Assurance Plan, and a proposal for an independent, registered professional engineer, or another third-party specialist in the technologies constructed (if the Director agrees), to certify the construction completion and readiness for start up.;

n) include an Operation and Maintenance Plan; and,

o) include proposed Remedial Action Completion criteria, as well as a proposed definition of "adequate progress" for all stages of the implemented Remedial Action.

Any proposed post-Work Plan Remedial Action documents must be described in the Work Plan, as well as any planned deviations from EPA's 1994 RCRA Corrective Action Plan document (referenced above). In cases where documents are proposed to be submitted following Work Plan approval, the Work Plan must fully describe these documents and explain why the Permittee believes they must be submitted pursuant to Work Plan approval. Proposed due dates for these documents must be contained in the schedule required by condition g) above.

VII.D.7. Final Remedial Design and Remedial Action Work Plan: The Director shall review the draft Corrective Measures Work Plan and approve it as final, approve it with modifications, or disapprove of it with comments. In the latter case, the Permittee shall revise the Work Plan, satisfactorily addressing the Director's comments, and submit it to the Director for review and approval according to the schedule in Table VII-1. In such cases the Director will approve the revision as Final with modifications, or disapprove it with comments. Failure to submit a revised Work Plan which adequately addresses each of the Director's comments shall constitute a violation of this permit.

VII.D.8. Following the Director's approval of the RD/RA Work Plan, the Permittee shall implement the Work Plan pursuant to the schedule contained therein.

VII.D.9. The Permittee shall engage an independent, registered professional engineer, or other independent third party specialist in the technologies constructed to certify the construction completion and readiness for start up. In the latter case, any specialist who is not a registered professional engineer must be previously approved by the Director. Such certification shall be performed according to the final, approved RD/RA Work Plan requirements and schedule. Copies of written documentation certifying the completion, and containing the signature of the third-party certifier, shall be provided to the Director within thirty (30) days of the date of certification.

VII.D.10. RD/RA Progress Reports.

Within 6 months of the start-up of the selected remedial action, and quarterly thereafter, the Permittee shall submit to the Director a demonstration that adequate progress (as defined in the approved RD/RA Workplan) is being made towards meeting the remedial action objectives/levels. If the Director decides that adequate progress is not being made, the Permittee must submit a permit modification request, pursuant to ~~40 CFR 270.42~~WAC 173-303-830(4), proposing revisions, additions, and/or new measures which will demonstrate adequate progress. In this case the Permittee shall submit the modification request within thirty (30) days of receiving the Director's notification, or as otherwise requested in writing by the Director, that adequate progress is not being made. The Director may also initiate a permit modification, pursuant to ~~40 CFR 270.41~~WAC 173-303-830(3).

VII.D.11. Determination of Remedial Action Completion: The Permittee may, at any time following the implementation of the Remedial Action, and after four (4) consecutive quarters of monitoring demonstrating that remedial action objectives and levels have been met, submit a written demonstration to the Director that these objectives/levels have been achieved, and that no further operation of the remedial action is necessary to maintain the media cleanup levels at the point of compliance. Such a demonstration shall be contained in a draft Remedial Action Completion Report, submitted together with a draft Compliance Monitoring Plan (per VII.F.) and a permit modification request per ~~40 CFR 270.42~~WAC 173-303-830(4).

Once the Director has acted upon the Permittee's modification request, and in those cases where the request is approved, the Permittee shall:

a) Cease operation of the Remedial Action system as instructed by the Director in the final permit modification;

b) Maintain the Remedial Action system in readiness for re-starting, unless otherwise instructed by the Director in the final permit modification letter.

c) Implement the approved groundwater Compliance Monitoring Plan, as described in VII.F.; and,

d) For any non-groundwater component of the Remedial Action system, implement any Compliance Monitoring Plan called for in the RD/RA Work Plan, or plans submitted, and approved, subsequent to that document.

If the Director denies the permit modification request, the Permittee shall continue operation of the Remedial Action and Remedial Action Monitoring (per the approved Plan).

VII.E. Groundwater Remedial Action Monitoring Plan

VII.E.1. The Groundwater Remedial Action Monitoring Plan, required in permit condition VII.D.6. as a part of the RD/RA Work Plan, must include plans to design, construct, operate, maintain, inspect, and repair a groundwater monitoring system capable of monitoring the performance of the selected remedy or remedies, and must satisfactorily include, at a minimum, the following additional requirements:

- **$** Designated monitoring locations providing a sufficient number of wells, installed at appropriate locations and depths, to yield samples that represent the quality of groundwater which will be impacted by the groundwater remediation system contained in the approved Remedial Action;

- **$** Any designated monitoring wells, installed at appropriate locations and depths, to yield samples that represent the quality of groundwater which will be used as an indication of background or upgradient conditions, or for any other purposes than measuring the impact of the remediation system;

- **$** A rationale demonstrating that the proposed monitoring well locations can sufficiently meet the remedial levels/objectives;

- **$** A discussion, and listing of criteria, describing how and when the Permittee shall demonstrate that remediation action levels/objectives have been sufficiently met to discontinue operation of the groundwater component of the Remedial Action, and begin Compliance Monitoring. The criteria proposed in the Monitoring Plan must be consistent with the criteria set out in the Final Remedial Action Permit Modification (VII.D.3.);

- **$** The name, monitoring frequency, and analyte/parameter list for all monitoring wells;

- **$** The program operation requirements in accordance with permit condition VII.G.;

- **$** The well construction, maintenance, and replacement requirements in accordance with permit condition VII.H.;

- **$** A project-specific Quality Assurance Plan (QAPjP), consistent with EPA's QAPjP guidance (EPA QA/R-5, 1997). The data evaluation requirements for Corrective Measure groundwater monitoring, and the remedial objectives set out in the RD/RA Work Plan (VII.D.7.), must be included in the QAPjP;

- A project schedule for Remedial Action monitoring activities, including submittal of quality-assured sampling results;

The Groundwater Remedial Action Monitoring Plan, as part of the RD/RA Work Plan , must be submitted by Permittee, reviewed, and approved by the Director together with the Work Plan. Monitoring, in accordance with the approved Plan, shall be implemented once the groundwater component of the Remedial Action is operating.

VII.E.2. The Groundwater Remedial Action Monitoring Plan may be modified at any time to better evaluate the performance of the Measure. The Director may initiate a modification for the reasons set out in ~~40 CFR 270.41~~WAC 173-303-830(3). Regardless of whether the Director or the Permittee initiates the permit modification -- to make changes to the Monitoring Plan -- the modification process will comply with the requirements of ~~40 CFR 270, Subpart D~~WAC 173-303-830.

VII.E.3. The Permittee shall enter all monitoring, testing, and analytical data obtained pursuant to this section in the operating record required by VII.A.9.

VII.E.4. All monitoring, testing, and analytical data obtained pursuant to Section VII.E. shall be submitted to the Director in paper and in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

VII.F. Groundwater Compliance Monitoring: At the completion of the groundwater component of the Remedial Action a groundwater compliance monitoring plan must be implemented for the purpose of monitoring groundwater at the point(s) of compliance. Compliance monitoring shall help establish how effective the Remedial Action was at achieving remedial action levels/objectives that must continue to be met after discontinuation of the Remedial Action operation.

VII.F.1. Compliance Monitoring Plan. The Compliance Monitoring Plan must include plans to design, construct, operate, maintain, inspect, and repair a groundwater compliance monitoring system capable of yielding samples representing groundwater quality at the point of compliance, as well as at any monitoring points selected for other purposes. The Permittee shall submit a Draft Compliance Monitoring Plan as part of the Remedial Action Completion report (VII.D.11). Following review, the Director shall either a) approve the Draft Plan as Final, b) approve the Draft Plan as Final, but with modifications, c) disapprove the Draft Plan with comments, or d) in the event the Remedial Action Completion permit modification request itself is disapproved, disapprove the Plan without comments. If the Plan is disapproved with comments, within thirty (30) days the Permittee shall submit a revised Plan to the Director for review and approval which satisfactorily address the Director's comments.

At a minimum the Compliance Monitoring Plan must satisfy the following requirements:

a) Sufficient wells to demonstrate whether the groundwater at the point(s) of compliance continues to meet the remedial action levels and objectives approved in the Final RD/RA Work Plan (VII.D.7.);

b) a discussion, and a listing of the criteria, describing how the Permittee shall propose to demonstrate that remediation action levels/objectives have been met sufficiently, and long enough, to fully close (i.e., take those closure actions beyond discontinuing operation of the system) the groundwater component of the Remedial Action (per VII.I.), and end Compliance Monitoring;

c) a project-specific Quality Assurance Plan, which includes the data evaluation requirements set out in the Final, approved, Remedial Action Work Plan (VII.D.6.);

d) a project schedule for Compliance monitoring activities, including submittal of quality-assured sampling results;

e) designated monitoring well locations, monitoring frequencies, and analyte/parameter lists;
f) The program operation requirements in accordance with permit condition VII.G.; and,

g) The well construction, maintenance, and replacement requirements in accordance with permit condition VII.H.

VII.F.2. The groundwater data obtained in accordance with the compliance monitoring plan shall be compared to the remedial action levels. Any constituent less than the remedial action level will be considered to be in compliance.

VII.F.3. During the compliance monitoring period, detection of constituents in any point-of-compliance monitoring well exceeding the remedial action levels established under this permit, shall cause the Permittee to:

a) Notify the Director of this finding in writing within seven (7) calendar days after receiving validated data; and,

b) Immediately collect two (2) samples from any affected well(s) and reanalyze both samples for all constituents with established remedial action levels.

VII.F.4. If analytical results from:

a) Neither validated verification sample described in permit condition VII.F.3.b. confirm the detection of constituents above the remedial action levels, the Permittee shall resume compliance monitoring according to the established schedule and notify the Director that the compliance monitoring program is being resumed;

b) Both or one of the validated verification samples described in permit condition VII.F.3.b. confirm the detection of constituents above the remedial action levels, the Permittee shall continue to monitor in accordance with the approved compliance monitoring program in effect, but will:

i) Re-implement the groundwater component of the Remedial Action system within 90 days, unless otherwise instructed by the Director; or,

ii) Submit to the Director, within seven (7) calendar days of receiving validated data, notice that the Permittee intends to demonstrate that an off-site source caused the increase. If the Director approves this course of action, a report of the off-site demonstration shall be made within sixty (60) calendar days. If necessary, a request for a modification to the Compliance Monitoring Plan (a permit modification per ~~40 CFR 270.42~~WAC 173-303-830(4)) shall be submitted with the demonstration report. If the Director disapproves the demonstration, the Permittee shall re-implement the groundwater component of the Remedial Action system within thirty (30) days of receipt of the Director's disapproval.

If the Remedial Action system, or a portion of the system, is re-implemented, the Permittee shall simultaneously re-implement the Remedial Action Monitoring

Plan (required by section VII.E.). To return to Compliance monitoring, the Permittee must follow procedures in VII.D.11. to determine, and receive the Director's approval, that the Remedial Action may be considered completed.

VII.F.5. The Permittee may, at any time following twelve (12) consecutive quarters of Compliance Monitoring, demonstrate that remedial action objectives and levels continue to be met in a written demonstration to the Director. The demonstration must show that these objectives/levels have been achieved and that the criteria for closure in the Compliance Monitoring plan have been met. The Permittee may then propose that portions or the entirety of the groundwater Remedial Action and/or Compliance Monitoring Program be closed/terminated. Such a proposal shall be contained in a permit modification request per ~~40 CFR 270.42~~WAC 173-303-830(4), and shall include a demonstration that the discontinued Remedial Action need no longer be kept in readiness for operation. The Director shall review the permit modification request. If the Director agrees that the remedial action levels/objectives of the Remedial Action have been met, that these levels will be maintained without active remediation efforts, and that the continued stand-by status of the system is no longer necessary, the Permittee can close the system per VII.I. (if applicable). Closure of the Remedial Action system does not shield the Permittee from the need to restart a measure if the Director determines that conditions require such action.

If the Director approves a permit modification to discontinue groundwater Compliance Monitoring, these activities may be terminated.

VII.F.6. The Permittee shall enter all monitoring, testing, and analytical data obtained during Compliance Monitoring in the operating record required by VII.A.9.

VII.F.7. All monitoring, testing, and analytical data obtained pursuant to Section VII.F. shall be submitted to the Director in paper and in digital data files on computer diskette (or other mutually agreeable electronic media). These data files shall be formatted in accordance with instructions provided by the Director.

VII.G. Program Operation for Groundwater Monitoring

VII.G.1. The Permittee shall use: the techniques and procedures for groundwater analysis specified in the most recent edition of EPA SW-846, Test Methods for Evaluating Solid Waste, or other acceptable analytical methods approved in advance by the Director; well sampling procedures conducted in accordance with the most recent RCRA Groundwater Monitoring Guidance; and, the specific requirements of sampling plans approved under Part VII of this permit.

VII.G.2. The Permittee shall obtain water level elevation measurements from each monitoring well, at a frequency specified in the applicable plan. Measurements for each monitoring well shall be obtained prior to purging of the well. In order to minimize the potential for error caused by temporal variations, the Permittee shall obtain all water level elevation measurements within as short a time period as possible, not to exceed one working day.

The Permittee shall use these data to determine the rate and direction of groundwater flow at least annually for the periods of high and low water table elevation. The resultant contour maps and flow rates shall be submitted to the Director by March 1 of each year. The Permittee shall submit, with the contour maps, a data analysis report which includes an evaluation of the adequacy of the groundwater monitoring system to detect contaminant movement relative to observed groundwater flow directions.

VII.G.3. Quality assured results of analyses, including laboratory detection limits achieved for each constituent, shall be submitted to the Director: a) according to the schedule of the appropriate groundwater monitoring program per Sections VII.B., VII.E., and VII.F. of this permit, and in any case, b) no later than ninety (90) days following sampling.

VII.G.4. The Permittee shall biennially analyze a groundwater sample from one monitoring well for all 40 CFR 264 Appendix IX constituents. This well must be specified in the sampling plan. Any change to the sampling plan requires a modification of this permit.

If any 40 CFR Appendix IX constituents not included in the monitoring programs approved under VII.B., VII.E. or VII.F. are detected, the Permittee shall complete the procedures in VII.G.5. within thirty (30) calendar days of the Permittee's receipt of validated results. In no case shall the period between the date of sampling and the date of submission of analytical results to the Director exceed ninety (90) calendar days. An exception to this requirement is the case where groundwater metals concentrations are detected at levels exceeding PQLs, but at levels that the Director has determined to be in the range of background concentrations. In this case, the Permittee shall only proceed to VII.G.5. if the metal analyte level is a contaminant of potential concern, and its concentration is

above approved screening levels (for Pre-Corrective Measure Monitoring) or remedial levels (established in the permit modification documenting the chosen Remedial Action).

VII.G.5. For any Appendix IX constituent(s) detected above their Practical Quantitation Limit under permit condition VII.G.4. that is not included in the monitoring program currently in effect under the permit, the Permittee shall:

a) Add the newly detected constituent(s) to the list of monitoring constituents, and provide the Director with a copy of the revised list for inclusion into the Plan(s) approved per conditions VII.B., E., or F. In addition, include information related to sampling and analytical methodology for the new analyte, method detection limits, QA, and other information consistent with the respective Monitoring Plan;

b) Submit a report justifying why the detected constituent(s) should not be included in the monitoring program. If the Director does not accept the Permittee's justification, the Permittee shall, upon receipt of the Director's determination, add the constituent to the monitoring list in accordance with VII.G.5.a. If the Director accepts the justification, the constituent does not have to be added to the list of monitoring constituents; or,

c) Submit a notice to the Director that the Permittee has resampled and is repeating the analysis for the newly detected constituent(s). Within thirty (30) calendar days of the Permittee's receipt of results of the second analysis, the Permittee shall submit the results of the second analysis to the Director. In no case shall the period between the date of sampling and the date of submission of analytical results to the Director exceed ninety (90) calendar days. The Permittee shall either add the newly detected constituent(s) to the list of monitoring constituents pursuant to VII.G.5.a., or submit a report justifying why the detected constituent(s) should not be included in the monitoring program pursuant to VII.G.5.b.

VII.H. Well Construction, Maintenance and Replacement

VII.H.1. The Permittee shall maintain all monitoring wells in good working order, making necessary repairs in a timely manner so that the sampling program is not hindered or delayed in any way. The Permittee shall maintain an adequate supply of replacement parts and repair equipment as necessary to ensure that each sampling event proceeds on schedule.

VII.H.2. Visual evidence of damage to or deterioration of wells, and complete records of all well maintenance activities, must be noted in the operating record.

VII.H.3. The Permittee shall maintain borehole integrity of each monitoring well, using one of the methods designated in permit conditions VII.H.3.a., VII.H.b., or VII.H.c., consistently using the same method for each well.

a) For any existing monitoring well, the Permittee shall calculate the specific capacity of that well during the first sampling event after the effective date of this permit. The specific capacity shall then be recalculated for that well on a biennial basis during the term of this permit. If, at any time, the specific capacity of that well decreases by more than twenty percent (20%) of the original calculated value, that well shall be redeveloped to within five percent of the original specific capacity.

The Permittee shall calculate the specific capacity for any well installed during the term of this permit during the first sampling event for which that well is available for sampling. The recalculation and redevelopment criteria, as specified above for existing wells, shall then be followed by the Permittee; or,

b) The well shall be sounded on an annual basis. If the well has a build-up of one (1.0) foot or more of sediment at the bottom, the well shall be redeveloped and the sediment removed; or,

c) For any existing monitoring well, the Permittee shall perform a slug test on the well to determine the hydraulic conductivity of the well during the first sampling event after the effective date of this permit. A slug test shall then be performed on the well on a biennial basis using the same slug test method. If the hydraulic conductivity determined by this method decreases by twenty percent (20%) or greater from the original value, that well shall be redeveloped to within five percent (5%) of the original hydraulic conductivity.

The Permittee shall perform a slug test noted above to determine the hydraulic conductivity of any well installed during the term of this permit during the first sampling event for which that well is available for sampling. The re-performance of the slug test and the redevelopment criteria shall be conducted by the Permittee as specified above for existing wells.

VII.H.4. If a monitoring well must be decommissioned, the Permittee shall give notice in writing to the Director of the rationale for the decision at least thirty (30) days

prior to the actual decommissioning. The notice shall include a proposed timeframe and location for well replacement. The Director shall review the proposal and approve it, disapprove it with comments, or approve it with modifications. If the Director disapproves the proposal, the Permittee shall replace the well per the Director's instructions in the disapproval letter. The Permittee shall also provide information regarding the new well in the operating record and to the Director as specified by permit conditions VII.H.5. and VII.H.6.

The Permittee shall close each well being replaced no later than ninety (90) calendar days after installation of the replacement well. Wells must be abandoned per Washington State requirements in WAC 170-303-160. Unless samples from that well have been at or below the approved clean-up levels for three (3) consecutive years, closure of wells that are not separated from the contaminated zones by a well-defined aquitard (defined below) shall be accomplished by pulling the casing or drilling out the casing and screen, redrilling the borehole, and backfilling the entire depth of the borehole with a three to five percent (3% - 5%) bentonite and cement grout, using a tremie pipe. With prior Ecology approval, wells that are separated from the contaminated zones by a continuous, well-defined aquitard can be abandoned by having their casings ripped below the seal, to destroy the screen and filter pack, and pressure grouting from the bottom up. Equivalent or superior methods may be substituted upon written approval of such substitution by the Director. Such substitution and approval will not require a permit modification. The Permittee shall provide information regarding closed wells in the operating record and to the Director as specified by permit conditions VII.H.5. and VII.H.6.

VII.H.5. Minor deviations from the abandonment procedures specified in VII.H.4. deemed necessary by the Permittee due to unforeseen events in the field at the time of well abandonment shall not be considered a modification of this permit. The Permittee shall place a notation of such a deviation, accompanied by a narrative explanation, in the operating record. The Director may judge the soundness of this determination during inspections of the facility and take appropriate action.

VII.H.6. Inspection of drilling and well construction of any new or replacement monitoring well shall be performed by a qualified geologist. The geologist shall construct and maintain a detailed log of each well describing the geologic strata encountered during drilling. The logs and descriptions shall include:
(a) Date and time of construction;
(b) Drilling method and any fluid used;
(c) Well location (surveyed to within 0.5 feet);
(d) Borehole diameter and well casing diameter;
(e) Well depth (to within 0.1 feet);
(f) Drilling logs and lithologic logs from the field, including a description of soil or rock types, color, weathering, texture, structure and fractures;
(g) Casing materials;
(h) Screen material and design, including screen length and slot size;

(i) Casing and screen joint type;
(j) Filter pack material, including size and placement method and approximate volume;
(k) Composition and approximate volume for sealant material and method of placement;
(l) Surface seal design and construction;
(m) Well development procedures;
(n) Ground surface elevation (to within 0.01 feet);
(o) Top of casing elevation (to within 0.01 feet); and,
(p) Detailed drawing of well, including dimensions.

VII.H.7. The Permittee shall submit the logs and descriptions obtained pursuant to permit condition VII.H.6., as-built drawings, and location information of the new well to the Director within sixty (60) calendar days after completion of the well or by the schedule approved by the Director in specific work plans.

VII.I. Remedial Action System Closure

The Permittee shall submit to the Director a request to close the Remedial Action system at least ninety (90) calendar days before closure is anticipated. At this time, the Permittee shall submit a Remedial Action closure plan. The plan shall be submitted as a permit modification request in accordance with ~~40 CFR 270.42~~WAC 173-303-830(4). The closure plan must include detailed procedures and a schedule for the disposal or decontamination of all elements of the Remedial Action.

For the purposes of this section (VII.I.), "closure" is used in its broad context as any activities related to the Remedial Action the Permittee takes following discontinuation of the remedial action operation. Closure of the Remedial Action, as described in VII.F.5., therefore, does not imply that the Remedial Action is necessarily a hazardous waste treatment, storage, or disposal unit/facility.

VII.J. Financial Responsibility

VII.J.1. Within thirty (30) days of the effective date of this Permit, the Permittee shall prepare and submit to the Director a detailed written estimate, in current dollars, of the cost completion of all RI, FS, and RD/RA activities required by this Permit, including development of workplans, implementation, operation and maintenance costs, costs of any necessary long-term monitoring, and satisfactory performance of all such activities. The cost estimate must be based on the costs to the Permittee of hiring a third party to perform all activities required by this Permit. A third party is a party who is neither a parent nor a subsidiary of the Permittee.

VII.J.2. Concurrent with submission of any IM Workplan required pursuant to this Permit, the Permittee shall submit to the Director a revised corrective action cost estimate which shall provide a detailed written estimate of the cost, in current dollars, of completion of all IM activities required by this Permit in addition to the most up to date estimated costs for corrective action prepared pursuant to Paragraph VII.J.1. The revised corrective action cost estimate must include the additional costs for development of workplans, implementation, operation and maintenance costs, costs of any associated monitoring, and satisfactory performance of all IM activities. The estimate of these additional costs must be based on the costs to the Permittee of hiring a third party to perform all IM activities required by this Permit. A third party is a party who is neither a party nor a subsidiary of the Permittee.

VII.J.3. The Permittee shall annually adjust and submit to the Director the most up to date corrective action cost estimate for inflation within thirty (30) days after the close of the Permittee's fiscal year.

VII.J.4. The Permittee shall adjust and submit to the Director the most up to date corrective action cost estimate within thirty (30) days after the Permittee becomes aware of new information which may increase the cost of satisfactory completion of corrective action activities required by this Permit, and within thirty (30) days after Director approval of any workplan pursuant to this Permit. The Permittee may propose to adjust the most up to date corrective action cost estimate when the Permittee becomes aware of new information which may increase the cost of satisfactory completion of corrective action activities. The corrective action cost estimate may be decrease only upon Director approval or modification and approval of the proposed decrease pursuant to this Permit. The corrective action cost estimate shall not be decreased to zero at any time prior to termination of this Permit.

VII.J.5. The Permittee shall maintain the most up to date cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.4. of this Section in the operating record.

VII.J.6. Within sixty (60) days of the effective date of this Permit, and within thirty (30)

days of any increase in the corrective action cost estimate, the Permittee shall establish and continuously maintain financial assurance for performance of corrective actions at the Facility in at least the amount of the most up to date cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.4. of this Section. The mechanism(s) for obtaining and demonstrating financial assurance for corrective action must be in a form consistent with 40 C.F.R. ' 264.143, to be approved by the Director. The Permittee shall submit documentation of such financial assurance to the Director annually, and within thirty (30) days of any adjustment to the corrective action cost estimate prepared in accordance with Paragraphs VII.J.1. through VII.J.4. of this Section. The financial assurance mechanism shall not be decreased to zero at any time prior to termination of this Permit.

VII.K Dispute Resolution

VII.K.1. In the event the Director approves with modification, or disapproves, in whole or in part, any plan, report, or schedule required by Part VII of this permit, the following procedure will apply:

a) The Director will notify the Permittee in writing of the disapproval or proposed modification to the plan, schedule, or submittal. Such notice shall:

i) Identify the problem(s) and, where appropriate, suggest the exact change(s) which need to be made to the plan, schedule, or submittal;

ii) Provide an explanation and supporting documentation or data of why modification is needed; and,

iii) Provide a date by which comments on the proposed modification or disapproval must be received from the Permittee. Such date will not be less than thirty (30) calendar days from the date of the Permittee's receipt of the notice under permit condition VII.K.1.a.

b) If the Director receives no written comments on the disapproval or proposed modification from the Permittee, the disapproval or modification will become effective five (5) calendar days after the close of the response period specified under condition VII.K.1.a.iii. The Director will promptly notify the Permittee that the modification has become effective.

VII.K.2. If the Permittee chooses to invoke the provisions of this section, the Permittee shall notify the Director in writing within thirty (30) days of receipt of the notice under permit condition VII.K.1.a). Such notice shall set forth the specific matter in dispute, the position the Permittee asserts should be adopted as consistent with the requirements of this permit, the basis for the Permittee's position, and any matters considered necessary for the Director's determination.

a) The Director and the Permittee shall have an additional thirty (30) days from Ecology's receipt of the notification, provided for in VII.K.2., to meet or confer to resolve any disagreement.

b) If agreement is reached, the Permittee shall comply with the terms of such agreement or if appropriate submit the revised submittal and implement the same in accordance with, and within the timeframe specified in, such agreement.

c) If agreement is not reached with the thirty (30) day period, the Director shall make a final determination concerning the disapproval or modification and notify the Permittee in writing of the final decision. The Permittee shall comply with the terms and conditions of the Director's decision in the dispute.

Such notification shall:

i) Indicate the effective date of the disapproval or modification, which shall be no later than fifteen (15) calendar days after the date of notification of the final decision;

ii) Include an explanation of how comments were considered in developing the final disapproval or modification; and,

iii) Provide a copy of the final disapproval or modification.

VII.K.3. The Director's decision using the procedures specified in permit conditions VII.K.1. and VII.K.2. does not require permit modification and is not subject to administrative appeal.

VII.L. Off-site Access

To the extent that work required by this permit must be done on property not owned or controlled by the Permittee, the Permittee shall use its best efforts to obtain site access agreements from the present owner(s) of such property. "Best efforts" shall mean, at a minimum, a certified letter from the Permittee to the relevant property owner(s) stating the need and purpose for site access, requesting access to such property by the Permittee, the Director, and the Director's authorized representatives, and offering reasonable compensation for any financial losses sustained as a result of the activities conducted during the access period. If a reply is received from the property owner(s), the Permittee shall send follow-up letters as appropriate to clarify the work contemplated and address the owner's reasonable concerns. The Director may assist the Permittee in obtaining such agreements.

VII.M. Other Permits and/or Approvals

To the extent that work required by this permit must be done under a permit(s) and/or approval(s) pursuant to other Federal, State, or local regulatory authorities, the Permittee shall use its best efforts to obtain such permits in a timely manner. For the purposes of this permit condition, "best efforts" shall mean submittal of a complete application for the permit(s) and/or approval(s) at the earliest opportunity after the information necessary to prepare the application is available to the Permittee.

VII.N. Corrective Action Schedule Extensions

Failure to meet the schedules contained in this permit shall constitute a violation of the permit. Extensions to any schedule contained in this Permit require a permit modification pursuant to ~~40 CFR. ' 270.42~~ WAC 173-303-830(4).

TABLE VII-1: CORRECTIVE ACTION COMPLIANCE SCHEDULE

Item #	Permit Condition	Due Date
1	VII.A.4.a - Draft Comprehensive RFI Report not including Draft Risk Assessment	June 30, 2001
2	VII.A.3.d - Draft Risk Assessment	August 10,2001
3	VII.A.4.b - Revised Draft RI (RFI), if necessary (including revised draft Risk Assessment)	45 days after receipt of the Director's comments on the Draft RFI and Draft Risk Assessment
4	VII.A.3.d and VII.A.4.b - Final Comprehensive RI Report (including final Risk Assessment)	45 days after receipt of the Director's comments on the Draft or Revised Draft RI
5	VII.A.4.b - FS Scope of Work Technical Memorandum	21 days after the Director's approval of the draft RI report; or, if the draft RI report is not approved, concurrent with submittal of the Final RI report
6	VII.A.7 - RI Progress Reports	Every six months on February 10 and August 10
7	VII.C.1. - Draft Interim Measure(s) Work Plan	September 1, 2001
8	VII.C.2. - Final Interim Measure(s) Work Plan	14 days after receipt of the Director's comments on the Draft Interim Measures Work Plan
9	VII.D.1 - Draft Feasibility Study Report	Within 60 days of the Director's approval of

		the Final Comprehensive RI Report
10	VII.D.2 - Final Feasibility Study Report	Within 45 days of receipt of the Director's comments on the Draft.
11	VII.D.3 - Permit Modification (including public comment on the draft permit modification)	Following the Director's approval of the Final Corrective Measure Study *See Below
12	VII.D.4 - Draft Remedial Design and Remedial Action Scope of Work	Per the date established in the Final Permit Modification, as required by VII.D.3.
13	VII.D.5 - Final Remedial Design and Remedial Action Scope of Work	Within 30 days of receipt of the Director's comments on the Draft
14	VII.D.6 - Draft RD/RA Work Plan	Within 45 days of the Director's approval of the Final Remedial Design and Remedial Action Scope of Work, or no later than 180 days following the effective date of the permit modification (Item #13), whichever is soonest
15	VII.D.7 - Final RD/RA Work Plan	Within 45 days of receipt of the Director's comments on the Draft
16	VII.I. - Closure of the Remedial Action System	Provide 90 days prior notice of closure to Ecology`

* Assuming the modification here is an Agency-initiated modification (per ~~40 CFR 270 Subpart D~~WAC 173-303-830(3)), the Director will prepare a draft permit modification per procedures in ~~40 CFR 124~~ WAC 173-303-830(3) and 840. This draft permit modification will be available for public comment, along with the Director's Statement of Basis. At the end of this comment period the Director will consider all comments and prepare a final permit modification.

ATTACHMENT MM -- SCOPES OF WORK, PLANS, AND WORKPLANS

CONTENTS:

" Final RFI Addendum Scope of Work (October 1999). Hereby incorporated by reference.

" Documents addressing additional RFI Tasks:

In June 2000 the Permittee proposed a new direction for certain elements of the RFI. As part of this proposal the Permittee agreed to: (1) submit an off-site characterization work plan -- for performing groundwater characterization activities; (2) submit a work plan for performing additional soil gas measurements and installing monitoring wells in the contaminated downgradient areas southwest of Denver Avenue; and, (3) conduct analyses of future contaminant scenarios (with reasonably protective fate and transport assumptions and direct the Permittee to plan, design, and implement an interim measure considerations) as part of the Feasibility Study, rather than the RFI. The final off-site characterization work plan was approved by EPA on September 29, 2000.

The final work plan for the second phase of the soil gas measurement effort was approved by EPA on December 4, 2000. Both of these work plans are hereby incorporated into the permit by reference.

" Pre-Corrective Action Monitoring Plan. A "Final Pre-Corrective Action Monitoring Plan" was submitted by the Permittee in July of 1992. The Plan was approved by EPA in August of 1992, and is hereby incorporated by reference.

" Risk Assessment Work Plan. A Final Risk Assessment Work plan was submitted by the Permittee in February of 2001. The Plan was approved by EPA on April 16, 2001, and is hereby incorporated by reference.